## **CLAIMS**

We claim:

- 1. A method for generating an output file from a source file where benign modifications to a content of the output file still render the output file authentic, comprising:
- 5 constructing an index vector from said source file; quantizing said source file;

generating an authentication mark from the quantized source file and said index vector; generating an authentication tag by appending the index vector to said authentication mark; and

- 2. The method of claim 1, where said appending comprises:

  inserting said authentication tag to said source file by a robust data hiding algorithm.
- 3. The method of claim 1, further comprising: compressing said index vector.
- 4. The method of claim 1, further comprising:applying a distortion to said source file, to form a distorted file,

wherein the generating of the output file is performed by appending said authentication tag to said distorted file.

- 5. The method of claim 1, further comprising:

  providing a reader for reading the source file.
- 5 6. The method of claim 1, wherein the source file is positioned in a smart card.
  - 7. The method of claim 1, wherein said authentication mark is obtained by a digital signature algorithm.
  - 8. The method of claim 1, wherein said authentication mark is obtained by a modification detection algorithm.
- 9. The method of claim 1, wherein said authentication mark is obtained by a message authentication algorithm.
  - 10. The method of claim 1, wherein said source file includes image data.
  - 11. The method of claim 1, wherein said source file includes video data.
  - 12. The method of claim 1, wherein said source file includes sound data.

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- 13. The method of claim 1, wherein no distortion is added to the source file to generate the output file.
- 14. The method of claim 1, wherein said tag is created simultaneously with a creation of said source file.
- 5 15. The method of claim 1, wherein said authentication tag is created after the source file has been created, and is appended to the source file.
  - 16. A method for generating an output file from a source file where benign modifications to a content of the output file still render the output file authentic, comprising:

constructing an index vector from said source file;

constructing a feature vector of said source file;

quantizing said feature vector;

generating an authentication mark from the quantized feature vector and said index vector;

generating an authentication tag by appending the index vector to said authentication mark; and

generating the output file by appending said authentication tag to said source file.

17. The method of claim 16, further comprising:

constructing said index vector from said feature vector of said source file.

18. The method of claim 16, further comprising:

generating a distorted file from said feature vector,

wherein the generating of the output file is performed by appending said authentication

- 5 tag to said distorted file.
  - 19. The method of claim 16, wherein said feature vector comprises discrete cosine transform coefficients.
  - 20. A method for generating an output file from a source file where benign modifications to a content of the output file still render the output file authentic, comprising:

constructing an index vector from said source file;

quantizing said source file;

compressing said index vector;

generating an authentication mark from the quantized source file and said compressed index vector;

generating an authentication tag by appending the index vector to said authentication mark; and

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21. A method for generating an output file from a source file where benign modifications to a content of the output file still render the output file authentic, comprising:

constructing an index vector from said source file;

quantizing said source file;

compressing said index vector;

generating an authentication mark from the quantized source file and said index vector; generating an authentication tag by appending said compressed index vector to said authentication mark; and

generating the output file by appending said authentication tag to said source file.

22. A method for generating an output file from a source file where benign modifications to a content of the output file still render the output file authentic, comprising:

constructing a feature vector from said source file;

constructing an index vector from a feature vector of the source file;

quantizing said feature vector according to the index vector;

generating an authentication mark from quantized feature vector and said index vector;

generating an authentication tag by appending the index vector to said authentication

mark; and

- 23. The method of claim 22, further comprising:
- compressing said index vector. 20

24. A method for authenticating a data file, comprising:

extracting an authentication tag from said data file;

extracting an index vector from said authentication tag;

extracting an authentication mark from said authentication tag;

5 quantizing said data file; and

verifying said index vector and said quantized data file with said authentication mark.

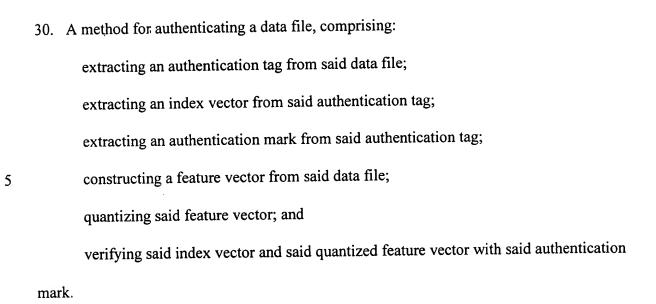
- 25. The method of claim 24, wherein said index vector comprises a compressed index vector.
- 26. The method of claim 25, further comprising:

decompressing said compressed index vector prior to said quantizing of said data file.

- 27. The method of claim 24, wherein said authentication mark is obtained by a digital signature algorithm.
- 28. The method of claim 24, wherein said authentication mark is obtained by a modification detection algorithm.
- 29. The method of claim 24, wherein said authentication mark is obtained by a message authentication algorithm.

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31. A system for generating an output file from a source file where benign modifications to a content of the output file still render the output file authentic, said system comprising:

means for constructing an index vector from said source file;

means for quantizing said source file;

means for generating an authentication mark from the quantized source file and said index vector;

means for generating an authentication tag by appending the index vector to said authentication mark; and

means for generating the output file by appending said authentication tag to said source file.

32. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method for generating an output file

from a source file where benign modifications to a content of the output file still render the output file authentic, said method comprising:

constructing an index vector from said source file;

quantizing said source file;

generating an authentication mark from the quantized source file and said index vector; generating an authentication tag by appending the index vector to said authentication.

mark; and